

REMARKS

Following this Amendment, Claims 1, 3, 5-13, 15, 16, and 26-30 are pending in the application. Claims 17-25 were previously withdrawn. Claim 26 is currently amended and Claims 27-30 are new; no new matter has been added. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

At the outset, Applicants understand that the Examiner's rejections of Claim 21 appear to be a typographical error, as Claim 21 was previously withdrawn. Applicants assume these rejections were intended to relate to Claim 26, which was added as a new claim in the September 28, 2007 response. Applicants request clarification if this assumption is incorrect.

REJECTION UNDER 35 U.S.C. § 112

Claim 21 [Claim 26] stands rejected under 35 U.S.C. § 112, first paragraph, as being indefinite for failing to particularly point and distinctly claim the subject matter which Applicants regard as the invention. This rejection is respectfully traversed.

It is noted that Claim 26 has been amended herein to now recite "the doped silica glass consists of a silica glass doped with titanium." Proper antecedent support for this claim amendment can be found at least in paragraphs [0023] and [0042] of Applicants' specification as originally filed.

REJECTION UNDER 35 U.S.C. § 102

Claim 21 [Claim 26] stands rejected under 35 U.S.C. § 102(b) as being anticipated by *Okamoto et al.* (U.S. Pat. No. 4,358,306). This rejection is respectfully traversed.

As discussed above, Claim 26 has been amended to recite “the doped silica glass consists of silica glass doped with titanium.” Applicants respectfully maintain that *Okamoto et al.* do not disclose or teach a quartz glass body prepared by a flame hydrolysis process wherein titanium is the dopant. Thus, Applicants respectfully request reconsideration and withdrawal of this rejection.

REJECTION UNDER 35 U.S.C. § 103

Claims 1, 3, 5-13, 15 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Jinbo* (U.S. Pat. No. 6,473,226) in view of *Okamoto et al.* and in further view of *Berkey* (U.S. Pat. No. 4,620,861). This rejection is respectfully traversed.

At the outset, Applicants respectfully note that the disclosure according to *Jinbo* is limited to the production of quartz glass rods that may have a certain fluorine content. Nothing in *Jinbo* teaches or suggests that the flame hydrolysis process can also be performed on quartz glass doped at least with titanium. Additionally, the disclosure of *Okamoto et al.* does not encompass doping with titanium. As known to those skilled in the art, flame hydrolysis is a very specific process which works with specific ingredients only. Specific dopants may lead to a relatively strong deviation in the refractive index of the silica glass.

By contrast, although *Berkey* does appear to disclose doping of a quartz glass rod with titanium, the process is very different from that of the present invention. First, a porous precursor is produced by flame hydrolysis on a target, while the target is reciprocated in a direction to the mandrel axis (*See*, Ex. 1). Next, the preform is selectively sintered in a conventional drying and sintering furnace. Thereafter, further doping with a gas mixture (*e.g.*

comprising Cl_2 or C_2F_6) is performed, where the process achieves further doping by infiltration (See, Ex. 1).

Applicants note that a sintering of a rod produced in this way (including a two-part dopant process) teaches away from the stream-lined process of the present invention and would lead to significantly larger contaminants (in particular, pores) leading to striae that is highly deviated from the desired ranges. Additionally, according to *Berkey*, the soot consolidation is performed perpendicular to the target axis (shown in Figs. 1 and 2). As such, there is no motivation to combine the *Jinbo* or *Okamoto et al.* references with the teachings of *Berkey*. Mere identification in the prior art of each element from numerous references is insufficient to defeat the patentability of the combined subject matter as a whole. Rejections based on obviousness grounds require articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). There is no reason for one to merely select a dopant disclosed by *Berkey* – used in a totally different type of process – in another flame hydrolysis manufacturing process, especially when flame hydrolysis is such a composition-specific process, dependent on many variables. Applicants respectfully request reconsideration and withdrawal of this rejection.

New claims 27-30 have been added herein. Claim 27 is based on original Claim 1 and further recites that the first formed glass body is formed through an opening of a furnace muffle while keeping a distance of about 10 to 20 mm between a flame outer rim and a refractory material of the furnace muffle. Claim 28 recites that a burner hole is used that is configured gradually conically shaped and opening gradually with an angle of 10 to 20°. Antecedent support for this subject matter can be found at least in paragraphs [0042] and [0054] of Applicants' specification as originally filed. As further explained in paragraph [0054], these

features lead to less defects which is a primary objective of the invention. Claim 29 recites that the first formed glass body is formed through an opening of a furnace muffle while keeping constant the distance between the single burner and a particle generation point on the target. Claim 30 further specifies the distance. Antecedent support for this subject matter can be found at least in paragraphs [0047] and [0053] of Applicants' specification as originally filed.

Applicants note that none of the cited prior art relates to the particular geometry of the furnace muffle or the arrangement of the burner. Thus, these new claims define patentable subject matter and are in condition for allowance.

CONCLUSION

Applicants respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. Thus favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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